UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,783	08/17/2006	Morito Morishima	YAMA:138	9499

37013 7590 05/14/2010

ROSSI, KIMMS & McDOWELL LLP.
20609 Gordon Park Square, Suite 150
Ashburn, VA 20147

EXAMINER	
PAUL, DISLER	

ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
05/14/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@rkmlegalgroup.com

Office Action Summary	Application No.	Applicant(s)	
	10/589,783	MORISHIMA, MORITO	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3;5;7-8; 10-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1;3;11-12;14* is/are allowed.

6)☒ Claim(s) *2;5;7-8;10;13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The applicant's amendment of the independent claims (2, 5, 8) have been considered and are rejected over new prior art as in Saito (US 6,839,676 B2).

Allowable Subject Matter

Claims 1; 3; 11-12; 14 are allowed.

The following is an examiner's statement of reasons for allowance:

In regard to the independent claim 1; while, the prior art of record disclose of a sound reproducing apparatus for driving a plurality of speakers with two of the speakers having a distance there-between to reproduce multi-channel sound, the sound reproducing apparatus comprising: a generator configured to generate a measuring signal and supply the measuring signal to each of the plurality of speakers; at least two sensors positionable to a listening position, each of the at least two sensors transmitting a reception notification when receiving a measuring sound wave radiated from each of the speakers in accordance with the measuring signal; a time difference measuring unit configured to measure a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from each of the at least two sensors; a distance calculator configured to calculate a distance between each of the at least two sensors and each of the two speakers based on the measured time difference and a position calculator configured to calculate the position of each of the two speakers based on the calculated distance.

However, none of the art as in combination disclose of such specific wherein the distance calculator configured to calculate a distance between the at least two sensors and a distance between each of the at least two sensors and each of the two speakers based on the measured time difference and the known distance between the two speakers; and a position calculator configured to calculate a position of each of the two speakers based on the calculated distance between the at least two sensors and the calculated distance between each of the two speakers from each of the at least two sensors.

Similarly Re claim 11, while the prior art of record disclose of the specific wherein a method of identifying a position of each of a plurality of speakers using at least two sensors disposed in a listening position, the method comprising the steps of: supplying the measuring signal in turn to two of the plurality of speakers having a known distance from each other; transmitting a reception notification when each of the at least two sensors receives a measuring sound wave radiated from each of the two speakers in accordance with the measuring signal; measuring a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from each of the at least two sensors for each of the two speakers and calculating a distance between each of the at least two sensors and each of the two speakers based on the measured time difference and a position calculator

configured to calculate the position of each of the two speakers based on the calculated distance.

However, none of the prior art of record disclose of the specific wherein calculating a distance between the at least two sensors and a distance between each of the two sensors and each of the two speakers based on the measured time difference and the known distance between the two speakers; and calculating positions of the at least two sensors relative to the two speakers based on the calculated distance between the at least two sensors and the calculated distance between each of the two speakers and each of the at least two sensors; calculating a position of each of the other of the plurality of speakers based on the calculated positions of the at least two sensors relative to the two speakers.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2; 5; 7-8; 10; 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 2003/0031333 A1) and Saito (US 6,839,676 B2).

Re claim 2, Cohen et al. disclose of a sound reproducing apparatus for driving a plurality of speakers to reproduce multi-channel sound, the sound reproducing apparatus comprising: a generator configured to generate a measuring signal and supply the measuring signal to a to-be-speaker of the plurality of speakers (fig.12 (39; 41-42); par [0058; 0060-0061]/the generator supplies the signals to the speakers) and at least two sensors disposed in a listening position, each of the at least two sensors transmitting a reception notification when receiving a measuring sound wave radiated from the to-be-detected speaker in accordance with the measuring signal (fig.8-9; fig.12 (44; 46); par [0049; 0058]/the multiple sensors to receive the signal and transmit a

reception notification of the signal); a time difference measuring unit configured to measure, as to each of the at least two sensors, a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from each of the at least two sensors (fig.12 (45); fig.9B; par [0058]); and a distance calculator configured to calculate, as to each of the at least two sensors, a distance between each of the at least two sensors and the to-be-detected speaker based on the measured time difference (fig.10; fig.12 (39); par [0055; 0058]/the distance calculator to calculate the distance between the sensor and the speaker based on the time difference) a position calculator configured to calculate a position of the to-be-detected speaker based on a distance between the at least two sensors and the calculated distance (fig.9-10; fig.12 (45); par [0052; 0055]/the speaker position is determined based on distance of the sensors microphone and calculated distance); a storage that stores the calculated position of the to-be-detected speaker (fig.12 (47, 39);par [0061-0062; 0064]) .

However, Cohen et al. failed to disclose of the specific wherein having a speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers.

But, Saito discloses of a system wherein the similar concept of having a speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers (fig.1-3 (3,13); col.2 line 18-24 & line 57-63; col.3 line 20-25 & 53-66; col.4 line 1-10/the switch corrector configured to swap signal lines between speakers based on the stored predetermined speakers positions from the decoder (3)) so as to obtain a common hardware to be adapted in a variety of multi-channel models and thus decrease the fabrication cost of the circuit device. Thus, it would have been obvious for one of the ordinary skills in the art to have modified the prior art by adding the speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers so as to obtain a common hardware to be adapted in a variety of multi-channel models and thus decrease the fabrication cost of the circuit device.

Re claim 5, Cohen et al. disclose of a sound reproducing apparatus for driving a plurality of speakers to reproduce multi-channel sound, the sound reproducing apparatus comprising: a generator configured to generate a measuring signal and supply the measuring signal in turn to two of the plurality of speakers and having a

known distance there-between (fig.1; fig.12 (39; 41-42); par [0039; 0058; 0060-0061]/the generator supplies the signals to the speakers and having a known distance); a sensor attached to a to be detected device and transmits a reception notification as to each of the two speakers when receiving a measuring sound wave radiated from each of the two speakers in accordance with the measuring signal (fig.8-9; fig.12 (44; 46); par [0049; 0058]/the multiple sensors to receive the signal and transmit a reception notification of the signal).

However, Cohen et al. failed to disclose of the to-be detected device as being a speaker. However, it would have been obvious for one of the ordinary skill in the art to have substituted the device with a speaker with having no unexpected result in determining the position of the loudspeakers.

Cohen et al. as modified further disclose of a time difference measuring unit configured to measure, as to each of the two speakers, a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from the sensor (fig.12 (45); par [0058]); a distance calculator configured to calculate a distance between each of the two speakers and the to-be-detected speaker based on the measured time difference (fig.10; par [0051]) and a position calculator configured to calculate a position of the to-be-detected speaker based on a known distance between the two measuring speakers the calculated distance and (fig.1-2; fig.10; par [0039; 0064]) and a storage that stores the calculated

position of the to be detected speaker (fig.12 (47, 39);par [0011; 0046-0047; 0064]/the sensor position is calculated based on the speaker's information).

However, Cohen et al. failed to disclose of a speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to and correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers.

But, Saito discloses of a speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to and correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers (fig.1-3 (3,13); col.2 line 18-24 & line 57-63; col.3 line 20-25 & 53-66; col.4 line 1-10/the switch corrector configured to swap signal lines between speakers based on the stored predetermined speakers positions from the decoder (3)) so as to obtain a common hardware to be adapted in a variety of multi-channel models and thus decrease the fabrication cost of the circuit device. Thus, it would have been obvious for one of the ordinary skills in the art to have modified the prior art by adding the a speaker layout corrector configured to swap signals of signal lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly positioned to and correct an incorrect layout of the speakers when

respective speaker positions stored in the storage are out of a predetermined relative position relationship of the speakers so as to obtain a common hardware to be adapted in a variety of multi-channel models and thus decrease the fabrication cost of the circuit device.

Re claim 7, the sound reproducing apparatus according to Claim 5, further comprising a sound field controller configured to produce sound image localization as if the speakers were located in predetermined recommended positions, respectively, based on respective speaker positions stored in the storage (fig.12 (47, 39); par [0062-0063]/ the interface includes the stored position to correct the virtual positions the speakers).

RE claim 8, Cohen et al. disclose of a method of identifying positions of a plurality of speakers using at least two sensors disposed in a listening position, the method comprising the steps of: generating a measuring signal and supplying the measuring signal to one of the plurality of speakers (fig.12 (39; 41-42); par [0058; 0060-0061]/the generator supplies the signals to the speakers); transmitting a reception notification when each of the at least two sensors receives a measuring sound wave radiated from the one speaker in accordance with the measuring signal(fig.8-9; fig.12 (44; 46); par [0049; 0058]/the multiple sensors to receive the signal and transmit a

reception notification of the receive signal); measuring a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from each of the at least two sensors (fig.12 (45); par [0058]); calculating a distance between each of the at least two sensors and the one speaker based on the measured time difference (fig.9-10; fig.12 (45); par [0058]/ the distance calculator to calculate the distance between the sensor and the speaker); calculating a position of the one speaker based on a distance between the at least two sensors and the calculated distance fig.1-2; fig.10; par [0039; 0064]) and storing the calculated position of the speaker into a storage (fig.12 (47, 39);par [0064]).

However, Cohen et al. failed to disclose of swapping signals lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly position to and correct and incorrect layout of the speakers when stored positions of the speakers are out of a predetermined relative position relationship of the speakers.

But, Saito discloses of swapping signals lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly position to and correct and incorrect layout of the speakers when stored positions of the speakers are out of a predetermined relative position relationship of the speakers (fig.1-3 (3,13); col.2 line 18-24 & line 57-63; col.3 line 20-25 & 53-66; col.4 line 1-10/the switch corrector configured to swap signal lines between speakers based on the stored predetermined speakers positions from the decoder (3)) so as to obtain a common hardware to be adapted in a

variety of multi-channel models and thus decrease the fabrication cost of the circuit device. Thus, it would have been obvious for one of the ordinary skills in the art to have modified the prior art by adding the concept of swapping signals lines output from an amplifier to the speakers between at least a pair of speakers that are incorrectly position to and correct and incorrect layout of the speakers when stored positions of the speakers are out of a predetermined relative position relationship of the speakers so as to obtain a common hardware to be adapted in a variety of multi-channel models and thus decrease the fabrication cost of the circuit device.

RE claim 10, the method according to Claim 8, further comprising the step of producing sound image localization as if the speakers were located in predetermined recommended positions respectively, based on stored positions of the speakers (fig.12 (47, 39); par [0062-0063]/ the interface includes the stored position to correct the virtual positions the speakers).

RE claim 13, the method according to Claim 8, wherein having two speakers being positioned (fig.8; par [0049]/the sensors being position in the same housing);

However, the combined teaching of cohen et al. Saito as a whole, and fail to disclose of the two sensors as being positionable independent of the other. But, official notice is taken having sensors being positionable independent of the other is well known in the art. Thus, it would have been obvious for one of the ordinary skills in the

art to have modified the prior arts by adding the two sensors as being positionable independent of the other so as to vary the arrangement of the sensors as desired.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./

Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614